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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,218	04/26/2006	Shoji Shiba	03500.518677	3411

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EXAMINER

EOFF, ANCA

ART UNIT	PAPER NUMBER
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1795

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04/09/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/577,218	SHIBA ET AL.	
	Examiner	Art Unit	
	ANCA EOF	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/12/2007, 01/16/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/12/2007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The foreign priority document JP 2004-190479 filed on June 28, 2004 was received and acknowledged. However, in order to benefit of the earlier filing date, a certified English translation is required.
2. Claims 1-21 are pending in the application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraph of 35 U.S.C. 102 that forms the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Damme et al. (EP 0 819 986).

With regard to claims 1-3 and 7, Van Damme et al. disclose a polymer having acid labile groups pendant from the polymer backbone and a photosensitive composition comprising a latent Bronsted acid and said polymer with acid labile groups pendant from the polymer backbone (abstract).

After image-wise exposing and heating said photosensitive composition, the solubility is increased in the exposed areas therefore the photosensitive composition of Van Damme et al. acts as a positive resist. Van Damme et al. specifically disclose poly(methacryloyl)-t-butyl carboxylic anhydride (page 5, lines 34-55), which meets the

limitation of the instant application for an acrylic resin with a carboxylic anhydride structure in the side chain.

The latent Bronsted acid, which is equivalent to the compound that generates acid of the instant application, may be an onium salt, such as diphenyliodonium hexafluorophosphate, triphenylsulfonium hexafluoroantimonate (page 5, line 55-page 6, line 16).

With regard to claim 2, since the polymer of Van Damme et al. comprises the carboxylic anhydride structure in the side chain of the polymer backbone, the carboxylic anhydride structure being responsible for the intramolecular crosslinking, as disclosed on page 24 of the instant application and, absent a record to prove the contrary, it is the examiner's position that the polymer of Van Damme et al. undergoes intramolecular cross-linking through the carboxylic anhydride structure (MPEP 2112).

With regard to claim 3, Wheeler et al. disclose that the anhydride groups are acid-cleavable groups (par.0038) and they are situated in the side chain of the polymeric binder.

5. Claim 20 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Ohkuma et al. (US Patent 6,455,112).

Claim 20 is a product-by-process claim.

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art,

the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (MPEP 2113)

With regard to claim 20, Okhuma et al. disclose an ink jet recording head comprising an ink flow path formed from a dissoluble resin on a substrate and having a cured epoxy resin as coating material (abstract).

On the substrate are disposed ink ejection energy generating elements, such as electrothermal converting elements or piezoelectric elements (column 8, lines 16-19) and an ink flow path and ink ejection outlets (equivalent to the ink discharge ports of the instant application) will be formed (column 8, lines 12-15).

It is the examiner's position that the ink jet recording head of Okhuma et al. is identical to the ink jet head of claim 20 of the instant application.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914).

With regard to claim 1, Kubota et al. disclose a photodegradable positive working resist having a carboxylic anhydride structure (par.0050).In particular, a

photodegradable positive-working resist employing the methacrylic anhydride as monomer component can provide excellent solvent resistance by heating, without affecting the sensitivity for photodegradation (par.0050).

Kubota et al. further disclose that during heating the layer of positive-working photosensitive material, a crosslinked material layer is formed (par.0016). During the exposure step, the irradiation with a ionizing radiation decomposes the crosslinked positive-working photosensitive material on a predetermined area of the crosslinked positive-working photosensitive material layer (par.0017). During development, the area irradiated by ionizing radiation is removed from the substrate, thereby obtaining a non-irradiated area as a desired pattern on a substrate (par.0018).

However, Kubota et al. fail to disclose that the positive-working photosensitive material comprises a compound that generates acid when irradiated with light, as required by the instant application.

Imai et al. disclose a positive working resin composition comprising a base polymer, an ether-bond-containing olefinic unsaturated compound as crosslinker and an acid-generating agent (abstract). Imai et al. further disclose that when a film formed from the above-mentioned composition is heated, the carboxyl groups of the base resin and the ether groups in the unsaturated compounds form crosslinks to make the film insoluble to a solvent or aqueous alkali solution (par.0097 and par.0110). Subsequently, by irradiating with an active energy beam and heating, an acid is generated, which acts as a catalyst to cleave the crosslink structure. Thus, the exposed part again becomes soluble to a solvent or aqueous alkali solution (par.0110).

Imai et al. further disclose that the acid generating agent acts as a catalyst for decomposing the resist film crosslinked by the reaction of the copolymer with the olefinic unsaturated compound (par.0099).

Since the positive working resists of Kubota et al. and Imai et al. have a similar mode of operation (crosslinking during the pre-baking step and photodegradation/decomposition of the crosslinked polymer during the exposure step), it would have been obvious to one of ordinary skill in the art at the time to the invention to use the acid-generating agent of Imai et al. in the positive working composition of Kubota et al., in order to take advantage of the acid generator which acts as a catalyst for decomposing the crosslinked resist film (Imai et al., par.0099).

With regard to claim 2, the resin of Kubota et al. comprises the same monomers as the instant application and, absent a record to the contrary, it is the examiner's position that the resin of Kubota et al. undergoes intramolecular crosslinking through the carboxylic anhydride structure (MPEP 2112).

With regard to claims 3-6, Kubota et al. further disclose a resist material comprising a methyl methacrylate / methacrylic acid / methacrylic anhydride copolymer (par.0085), wherein the methacrylic anhydride unit is equivalent to the unit of formula (2) of the instant application, wherein R_3 and R_4 are methyl groups.

With regard to claim 7, Imai et al. disclose that the acid-generating agent may be a diaryliodonium or triarylsulfonium salt (par.0104).

With regard to claim 8, Kubota et al. disclose that on a substrate (201), a positive-working resist layer is coated and baked (par.0066 and fig. 1A). The positive-

working resist layer is then irradiated with UV light through a mask (par.0066) and then is developed to form a mold pattern (3) (par.0068 and fig.1 B).

These steps are equivalent to the steps (1) and (2) and the mold pattern (3) is equivalent to the first pattern of the layer of the photosensitive resin composition of the instant application.

An anisotropic etching is performed from the rear surface of the silicon substrate to form a supply aperture (par.0072), which is equivalent with the "step of removing a part on the substrate" in step (3) of the instant application.

The mold pattern (3) formed by the positive-working resist is then irradiated by a ionizing radiation in order to decompose the crosslinked positive-working resist constituting the mold pattern (3) to a lower molecular weight, thereby enabling easy removal thereof (par.0074). These steps of irradiation and development are equivalent to the steps of exposure and development of the "second lithographic step" (step(3)) of the instant application.

With regard to claim 9, Kubota et al. disclose that the exposure in the first lithographic step is performed in a region between 210 to 330 nm (par.0086) and the exposure in the second lithographic step is performed in a region between 210 to 330 nm (par.0096). The positive-working resist is decomposed at a wavelength of 270 nm or shorter (par.0085) so such a wavelength is preferred for the second lithographic step.

Based on the disclosure of Kubota et al. one of ordinary skill in the art at the time could experiment and perform the exposure in the first lithographic step at a wavelength longer than the wavelength of the exposure light in the second lithographic step.

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy). (MPEP 2144.05)

With regard to claims 10-12, Kubota et al. further disclose that the developing liquid for the positive-working resist composition is a liquid containing a glycol ether having 6 or more carbon atoms, such as diethylene glycol monobutyl ether, a nitrogen-containing basic organic solvent, such as ethanolamine and morpholine and water (par.0062).

With regard to claim 15, Kubota et al. disclose that on a substrate (201), a positive-working resist layer is coated and baked (par.0066 and fig. 1A). The substrate is silicon and comprises a heat generating element thereon(par.0065)/discharge energy generating element. This step is equivalent to step (1) of the instant application.

The positive-working resist layer is then irradiated with UV light through a mask (par.0066) and then is developed to form a mold pattern (3) (par.0068 and fig.1 B). This is equivalent to the step (2) and the mold pattern (3) is equivalent to the first ink flow pattern of the instant application.

A negative-working material is coated on the mold pattern 3 to form a material layer for liquid flow path (4) (par.0069) then the negative-working material is subjected to pattern exposure to form an ink discharge port (par.0071).These steps are equivalent

to the steps (4) and (5), where the negative-working material layer is equivalent to the coating resin layer of the instant application.

An anisotropic etching is performed from the rear surface of the silicon substrate to form a supply aperture (par.0072), which is equivalent with the “step of removing a part on the substrate” of step (3) of the instant application.

The mold pattern (3) formed by the positive-working resist is then irradiated by a ionizing radiation in order to decompose the crosslinked positive-working resist constituting the mold pattern (3) to a lower molecular weight, thereby enabling easy removal thereof (par.0074). These steps of irradiation and development are equivalent to the steps of exposure and development of the “second lithographic step” (step (3)) of the instant application.

With regard to claim 16, Kubota et al. disclose that the exposure in the first lithographic step is performed in a region between 210 to 330 nm (par.0086) and the exposure in the second lithographic step is performed in a region between 210 to 330 nm (par.0096). The positive-working resist is decomposed at a wavelength of 270 nm or shorter (par.0085) so such a wavelength is preferred for the second lithographic step.

Based on the disclosure of Kubota et al. one of ordinary skill in the art at the time could experiment and perform the exposure in the first lithographic step at a wavelength longer than the wavelength of the exposure light in the second lithographic step.

A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize

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that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result- effective variable.). See also *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy). (MPEP 2144.05)

With regard to claims 17-19, Kubota et al. further disclose that the developing liquid for the positive-working resist composition is a liquid containing a glycol ether having 6 or more carbon atoms, such as diethylene glycol monobutyl ether, a nitrogen-containing basic organic solvent, such as ethanolamine and morpholine and water (par.0062).

8. Claims 13 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914) and in further view of Okhuma et al. (US Patent 6,455, 112).

With regard to claim 13, Kubota et al. disclose a photodegradable positive working resist having a carboxylic anhydride structure (par.0050). In particular, a photodegradable positive-working resist employing the methacrylic anhydride as monomer component can provide excellent solvent resistance by heating, without affecting the sensitivity for photodegradation (par.0050).

Kubota et al. further disclose that during heating the layer of positive-working photosensitive material, a crosslinked material layer is formed (par.0016). During the exposure step, the irradiation with a ionizing radiation decomposes the crosslinked positive-working photosensitive material on a predetermined area of the crosslinked positive-working photosensitive material layer (par.0017). During development, the area

irradiated by ionizing radiation is removed from the substrate, thereby obtaining a non-irradiated area as a desired pattern on a substrate (par.0018).

However, Kubota et al. fail to disclose that the positive-working photosensitive material comprises a compound that generates acid when irradiated with light, as required by the instant application.

Imai et al. disclose a positive working resin composition comprising a base polymer, an ether-bond-containing olefinic unsaturated compound as crosslinker and an acid-generating agent (abstract). Imai et al. further disclose that when a film formed from the above-mentioned composition is heated, the carboxyl groups of the base resin and the ether groups in the unsaturated compounds form crosslinks via addition reaction to make the film insoluble to a solvent or aqueous alkali solution (par.0097 and par.0110). Subsequently, by irradiating with an active energy beam and heating, an acid is generated, which acts as a catalyst to cleave the crosslink structure. Thus, the exposed part again becomes soluble to a solvent or aqueous alkali solution (par.0110).

Imai et al. further disclose that the acid generating agent acts as a catalyst for decomposing a resist film crosslinked by the reaction of the copolymer with the olefinic unsaturated compound (par.0099).

Since the positive working resists of Kubota et al. and Imai et al. have a similar mode of operation (crosslinking during the pre-baking step and photodegradation/cleavage of the crosslinked polymer during the exposure step), it would have been obvious to one of ordinary skill in the art at the time to the invention to use the acid-generating agent of Imai et al. in the positive working composition of

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Kubota et al., in order to take advantage of the acid generator which acts as a catalyst for decomposing the crosslinked resist film (Imai et al., par.0099).

The composition of Kubota et al. can be used of producing liquid discharge heads, fine structured members and hollow structured members (par.0033) but Kubota and Imai fail to disclose the method of claim 13 of the instant application.

Okhuma et al. disclose a method of producing an ink jet head, said method comprising the following steps:

- providing on a substrate the desired number of ink ejection energy generating systems such as electrothermal converting elements or piezoelectric elements (column 8, lines 16-19), equivalent to the “pressure generating elements for discharging the ink” of the instant application (as defined in specification, page 27, lines 23-25);

- applying a dissoluble resin on the substrate including the ink ejection energy generating elements, the dissoluble resin being a photosensitive material (column 8, lines 48-52), equivalent to step (1) of the instant application;

- patterning the dissoluble resist material layer to form the liquid flow path (column 9, lines 35-36), this patterning step being equivalent to the steps (2) and (3) of the instant application;

- forming a resin layer on the resist layer having the liquid flow path patterned (column 9, lines 35-36), this step being equivalent to the step (4) of forming an ink flow wall of the instant application;

- forming ink ejection outlets in the coating resin layer by use of oxygen plasma (column 10, lines 8-10), this step being equivalent to the step (5) of forming an ink discharge port of the instant application;

- dissolving the dissoluble resin forming the ink flow path pattern (column 10, lines 31-32), equivalent to step (6) of the instant application.

Based on Kubota's teachings that the composition may be used in methods of making liquid discharge heads, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the resist composition of Kubota modified by Imai as the dissoluble resin in the process of producing an inkjet head of Okhuma et al. , with a reasonable expectation of success.

With regard to claim 21, Kubota et al. disclose a resist material comprising a methyl methacrylate / methacrylic acid / methacrylic anhydride copolymer (par.0085), wherein the methacrylic anhydride unit is equivalent to the unit of formula (2) of the instant application, wherein R₃ and R₄ are methyl groups.

9. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914) and in further view of Kubota et al. (US Pg-Pub 2004/0070643).

With regard to claim 14, Kubota et al. disclose a photodegradable positive working resist having a carboxylic anhydride structure (par.0050). In particular, a photodegradable positive-working resist employing the methacrylic anhydride as

monomer component can provide excellent solvent resistance by heating, without affecting the sensitivity for photodegradation (par.0050).

Kubota et al. further disclose that during heating the layer of positive-working photosensitive material, a crosslinked material layer is formed (par.0016). During the exposure step, the irradiation with a ionizing radiation decomposes the crosslinked positive-working photosensitive material on a predetermined area of the crosslinked positive-working photosensitive material layer (par.0017). During development, the area irradiated by ionizing radiation is removed from the substrate, thereby obtaining a non-irradiated area as a desired pattern on a substrate (par.0018).

However, Kubota et al. fail to disclose that the positive-working photosensitive material comprises a compound that generates acid when irradiated with light, as required by the instant application.

Imai et al. disclose a positive working resin composition comprising a base polymer, an ether-bond-containing olefinic unsaturated compound as crosslinker and an acid-generating agent (abstract). Imai et al. further disclose that when a film formed from the above-mentioned composition is heated, the carboxyl groups of the base resin and the ether groups in the unsaturated compounds form crosslinks via addition reaction to make the film insoluble to a solvent or aqueous alkali solution (par.0097 and par.0110). Subsequently, by irradiating with an active energy beam and heating, an acid is generated, which acts as a catalyst to cleave the crosslink structure. Thus, the exposed part again becomes soluble to a solvent or aqueous alkali solution (par.0110).

Imai et al. further disclose that the acid generating agent acts as a catalyst for decomposing a resist film crosslinked by the reaction of the copolymer with the olefinic unsaturated compound (par.0099).

Since the positive working resists of Kubota et al. and Imai et al. have a similar mode of operation (crosslinking during the pre-baking step and photodegradation/cleavage of the crosslinked polymer during the exposure step), it would have been obvious to one of ordinary skill in the art at the time to the invention to use the acid-generating agent of Imai et al. in the positive working composition of Kubota et al., in order to take advantage of the acid generator which acts as a catalyst for decomposing the crosslinked resist film (Imai et al., par.0099).

The composition of Kubota et al. can be used of producing liquid discharge heads, fine structured members and hollow structured members (par.0033) but Kubota and Imai fail to disclose the method of claim 14 of the instant application.

Kubota et al. (US Pg-Pub 2004/0070643) disclose a method of producing a liquid discharge head (abstract), said method comprising the following steps:

- providing a substrate (201) with a desired number of liquid discharge energy generating elements (202) , such as an electrothermal transducer or piezoelectric element, equivalent to the pressure generating elements for discharging ink of the instant application (par.0097, fig. 10);

- applying a crosslinking positive resist layer (203) on the substrate (201) including the liquid discharge energy generating elements (202) (par.0103, fig.11), equivalent to step (1) of the instant application;

- applying a positive resist layer (204) on the thermal crosslinking positive resist layer (203) (par.0105, fig. 12), equivalent to the step (2) of the instant application;
- exposing the resist layer (204) through a photomask (205) on which a desired pattern is drawn (par.0106, fig. 13), equivalent to step (3) of the instant application;
- developing the positive resist layer (204) for pattern forming (par.0107, fig. 14), equivalent to step (4) of the instant application;
- subjecting the lower layer of resist (203) to patterning (exposure and development) (par.0108 and fig.15), equivalent to steps (5) and (6) of the instant application;
- coating a layer of a liquid channel structure material (207) on the patterned lower layer (203) and the upper layer (204), equivalent to step (7) of the instant application where the liquid channel structure material of Kubota et al. is equivalent to coating resin layer of the instant application;
- forming ink discharge ports (209) in the liquid channel structure material (207) (par.0111), equivalent to step (8) of the instant application ;
- radiating the liquid channel structure material (207) with a ionizing radiation and immersing the substrate (201) in developer to remove the mold resist (par.0114, fig.18), equivalent to the step (9) of the instant application.

Based on Kubota's teachings that the composition may be used in methods of making liquid discharge heads, it would have been obvious for one of ordinary skill in the art at the time of the invention to use the resist composition of Kubota modified by

Imai as crosslinking positive resin for the layer (203) in the process of producing an inkjet head of Kubota et al., with a reasonable expectation of success.

Response to Arguments

10. Applicant's arguments filed on January 16, 2008 with respect to the rejection of claims 1-7 under 35 USC 102(b) over Wheeler et al. (US Pg-Pub 2003/0059709) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914).

Applicant's arguments filed on January 16, 2008 with respect to the rejection of claims 8-12 and 15-19 under 35 USC 103(a) over Kubota et al. (US Pg-Pub 2004/0072107) in view of Wheeler et al. (US Pg-Pub 2003/0059709) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914).

Applicant's arguments filed on January 16, 2008 with respect to the rejection of claim 13 under 35 USC 103(a) over Ohkuma et al. (US Patent 6,455,112) in view of Wheeler et al. (US Pg-Pub 2003/0059709) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Kubota et al. (US Pg-Pub

2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914) and in further view of Ohkuma et al. (US Patent 6,455,112).

Applicant's arguments filed on January 16, 2008 with respect to the rejection of claim 14 under 35 USC 103(a) over Kubota et al. (US Pg-Pub 2004/0070643) in view of Wheeler et al. (US Pg-Pub 2003/0059709) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground of rejection is made in view of Kubota et al. (US Pg-Pub 2004/0072107) in view of Imai et al. (US Pg-Pub 2004/0081914) and in further view of Kubota et al. (US Pg-Pub 2004/0070643).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anca Eoff whose telephone number is 571-272-9810. The examiner can normally be reached on Monday-Friday, 6:30 AM-4:00 PM, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. E./

Examiner, Art Unit 1795

/Cynthia H Kelly/

Supervisory Patent Examiner, Art Unit 1795